

Listing of Claims

1. (Currently Amended) A method of processing traffic in a mobile communication system, comprising:

classifying different kinds of traffic;

allocating a priority to each kind of classified traffic; and

when ~~data is received including~~ different kinds of traffic are received, multiplexing the different kinds of traffic in the received data and transmitting the multiplexed traffic data according to the allocated priority, wherein said multiplexing comprises:

storing traffic having a higher priority of the received traffic in a corresponding block of transmission traffic according to a preset multiplex type;

checking whether or not a reserved block exists within the transmission traffic;

if the reserved block exists, checking whether or not traffic having a lower priority exists among the received traffic; and

if the lower priority traffic exists, processing the lower priority traffic to have a size sufficient to be stored on the reserved block and storing the processed traffic on the reserved block of the transmission traffic.

2. (Original) The method of claim 1, wherein classifying the traffic includes:

classifying the traffic into signaling traffic, data traffic, and voice traffic and then

classifying each of the data traffic and voice traffic.
3. (Original) The method of claim 2, wherein the data traffic is classified into at least

a Radio Link Protocol (RLP) control frame and an RLP new frame.
4. (Original) The method of claim 3, wherein RLP control frame classifications

include: an RLP SYNC frame, an RLP SYNC ACK frame, an RLP ACK frame, an RLP NAK
frame, and an RLP retransmission frame.
5. (Original) The method of claim 2, wherein voice traffic classifications include:

a full-rate voice traffic, a half-rate voice traffic, a quarter-rate voice traffic, and

an eighth-rate voice traffic determined on the basis of an output rate of a vocoder.
6. (Original) The method of claim 1, wherein the priorities of the different kinds of

traffic are set in order of signaling traffic, an Radio Link Protocol (RLP) control frame, full-rate
voice traffic, a half-rate voice traffic, an RLP new frame, a quarter-rate voice traffic, an eighth-

rate voice traffic, in response to a condition of a system except for the RLP control frame and the RLP new frame.

7. (Canceled)

8. (Currently Amended) The method of claim 1 [[7]], wherein if the higher priority traffic is signaling traffic, the signaling traffic is stored in a signaling block of the transmission traffic, and according to a kind of the lower priority traffic a voice traffic is stored in a primary block of the transmission traffic after the voice traffic is processed to have a size sufficient to be stored on the reserved block and a data traffic is stored in a secondary block of the transmission traffic after processing the data traffic in order to have a size enough to be stored on the reserved block.

9. (Currently Amended) The method of claim 1 [[7]], wherein if the higher priority traffic is data traffic, wherein the data traffic is stored in a secondary block of the transmission traffic and voice traffic, or the lower priority traffic is stored in a primary block of the transmission traffic, after the voice traffic is processed in order to have a size sufficient to be stored on the reserved block.

10. (Original) The method of claim 8, wherein the voice traffic is processed by controlling the output rate of the vocoder.

11. (Original) The method of claim 9, wherein the voice traffic is processed by controlling the output rate of the vocoder.

12. (Currently Amended) The method of claim 1 [[7]], wherein if the higher priority traffic is a voice traffic, the voice traffic is stored in a primary block of the transmission traffic and a data traffic having a priority lower than the voice traffic is stored in a secondary block of the transmission traffic, after the data traffic is processed to have a size sufficient to be stored on the reserved block.

13. (New) The method of claim 1, wherein the different kinds of traffic and the multiplexed traffic include one or more of signaling packets, voice packets, or data packets.

14. (New) A method of processing traffic in a mobile communication system, comprising:
classifying different kinds of traffic;

allocating a priority to each kind of classified traffic; and

when different kinds of traffic are received, multiplexing the different kinds of traffic and transmitting the multiplexed traffic according to the allocated priority, wherein said multiplexing includes:

- (a) determining whether a first kind of received traffic has a first rate;
- (b) determining that a second kind of received traffic has a second rate based on (a); and
- (c) storing the first and second kinds of received traffic in different transmission blocks based on (a) and (b).

15. (New) The method of claim 14, wherein a sum of the first and second predetermined rates at least substantially equals a full vocoder rate.

16. (New) The method of claim 14, wherein the different kinds of traffic and the multiplexed traffic include one or more of signaling packets, voice packets, or data packets.

17. (New) The method of claim 14, further comprising:

changing priorities of the different kinds of traffic based on a condition of the mobile communication system.

18. (New) A method of processing traffic in a mobile communication system, comprising:

classifying different kinds of traffic;

allocating a priority to each kind of classified traffic; and

when different kinds of traffic are received, multiplexing the different kinds of traffic and transmitting the multiplexed traffic according to the allocated priority, wherein said multiplexing includes:

(a) determining whether a first kind of received traffic having a first priority has a first rate;

(b) if the first kind of traffic does not have the first rate, then determining whether a second kind of traffic having a second priority has been received;

(c) if the second kind of traffic having the second priority has been received, then determining a rate of the second kind of traffic having the second priority; and

(d) storing the first and second kinds of traffic in different transmission blocks based on (a) - (c).

19. (New) The method of claim 18, wherein the different kinds of traffic and the multiplexed traffic include one or more of signaling packets, voice packets, or data packets.

Serial No. 10/685,570

Docket No. SI-0043

Amdt. dated PROPOSED

Reply to Office Action of May 3, 2007

20. (New) The method of claim 18, further comprising:

changing priorities of the different kinds of traffic based on a condition of the mobile communication system.